UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,181	03/19/2004	Daniel Kershaw	550-538	6747

23117 7590 04/18/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203	**EXAMINER** YAARY, MICHAEL D

ART UNIT	PAPER NUMBER
2193	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.
10/804,181</td><td>Applicant(s)
KERSHAW ET AL.</td></tr>
<tr><td>Examiner
Michael Yaary</td><td>Art Unit
2193</td><td></td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2004 and 27 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1. .   Claims 1-20 are pending in the application.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

3.   As to claims 1-20 the claims are rejected under 35 U.S.C. 101 because the

claimed invention is directed to non-statutory subject matter.

(i)   As to claims 1 and 11 the claims are non-statutory as they fail to produce a

"useful, concrete, and tangible result." *State Street Bank & Trust Co. v. Signature*

Financial Group Inc., 149 F. 3d 1368, 1373-74 (Fed. Cir. 1998). The claims are directed

to nothing more than a method and a circuit arranged in a manner to detect the need for

saturation and masking of manipulated data. The claims fail to provide a useful,

concrete, and tangible result using the specific arrangement, and thus fail to indicate

how the invention accomplishes a practical application. .

(ii)   Claims 2-10 and 12-20 are rejected for similar reasons as discussed for their

respective parent claims, as they fail to present any limitations that resolve the

deficiencies of the claim from which they depend.

(iii)   Suggested ways to overcome the rejection would be to incorporate into the

claims, as taught in the specification, ways in which the output values are used as a

result of the method implemented by the specified circuitry.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claim 20 recites the limitation "said between modes" in line 2. There is

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1, 3-5, 8-10,11, 13-15, and 18-20 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Uramoto et al. (hereafter Uramoto)(US Pat. 5.497,340) in view

of Ogura et al. (hereafter Ogura)(US Pat. 5,847,978).

8.   **As to claims 1 and 11,** Uramoto discloses shifting an input data value by a shift

amount dependent upon an input shift amount to generate a shifted data value (column

4, lines 13-27);

Generating a mask value (column 4, lines 28-31);

Masking said shifted data value with said mask value to generate said output

data value (column 4, lines 32-51) and generating a mask value to control said masking

(column 4, lines 32-51)

9.   Uramoto does not disclose in parallel with said shifting detecting in dependence

upon said input data value and said input shift amount if said output data value should

be saturated, and if said output data should be saturated, to generate a saturated data

value as said output data value.

However, Ogura discloses in parallel with said shifting detecting in dependence

upon said input data value and said input shift amount if said output data value should

be saturated (abstract lines 1-9), and if said output data should be saturated, to

generate a saturated data value as said output data value (column 2, line 64-column 3,

line 12).

10.   Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the teachings of Uramoto, by incorporating saturation

detection means, as taught by Ogura, for the benefit of preventing incorrect operation

results (Ogura, column 1, lines 16-20).

11.   **As to claims 3 and 13,** Uramoto further discloses said mask value is also

operable to control sign extending of said output data value (column 1, lines 20-42 and

column 4, line 52-column 5, line 11).

12.   **As to claims 4 and 14,** Uramoto further discloses said mask generation is

responsive to a partially shifted data value to detect if said output data value should be

saturated (column 4, line 52-column 5, line 11).

13.   **As to claims 5 and 15,** Uramoto further discloses said masking is performed by

a combinational logic array (logic circuit of mask generator shown in figure 8).

14.   **As to claims 8 and 18,** Uramoto further discloses a plurality of separate

saturating shift operations in parallel upon respective portions of said input data value

as part of single instruction multiple data operation (column 4, line 63-column 5, line 39).

15.   **As to claims 9 and 19,** Uramoto further discloses, said mask values are mask

values divided into at least one of a run of binary ones and a run of binary zeros

(column 4, lines 32-51).

16.   **As to claims 10 and 20,** Ogura discloses one or more control signals switch said

between modes providing at least one of:

        Saturating operation or non-saturating operation (column 5, lines 10-16);

Signed output generation or non-signed output generation; and

Narrowing or non-narrowing output generation.

17.   Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Uramoto in view of Ogura as applied to claims 1 and 11 above, and further in view of

Kang et al (hereafter Kang)(US Pat. 4,396,994).

18.   **As to claims 2 and 12,** Uramoto further discloses if said output data value

should not be saturated, then said mask generating circuit generates a mask value to

control said masking circuit to generate a shifted data value not outside of saturating

limits as said output data value (Column 3, lines 19-30 and column 4, lines 32-51

shifting and masking being applied when an overflow does or does not occur, thus when

saturating or non-saturating is needed.).

19.   Uramoto and Ogura do not disclose said data value shifting circuit is a data value

rotating circuit operable to rotate an input data value by a rotation amount dependent

upon an input shift amount to generated a rotated data value as said shifted data value.

        However, Kang discloses said data value shifting circuit is a data value rotating

circuit operable to rotate an input data value by a rotation amount dependent upon an

input shift amount to generated a rotated data value as said shifted data value (column

2, line 40-column 3, line 15).

20.   Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the teachings of Uramoto and Ogura, by implementing

circuitry that provides rotating/shifting as taught by Kang, for the benefit of reducing

circuit size and increasing performance.

21.   Claims 6, 7, 16, and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Uramoto in view of Ogura as applied to claims 1 and 11 above, and

further in view of Volkonsky (US Pat. 5,870,320).

22.   **As to claims 6 and 16,** Uramoto and Ogura do not disclose the data width of

said input data value is reduced when generating said output data value.

        However, Volkonsky discloses the data width of said input data value is reduced

when generating said output data value (abstract, lines 1-15).

23.   Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the teachings of Uramoto and Ogura, by reducing data

width, as taught by Volkonsky, for the benefit of improving instruction processing.

24.   **As to claims 7 and 17,** Volkonsky discloses detecting if said output data value

should be saturated in dependence upon said input data value is performed before said

data width is reduced (Inherent in lines 33-63 as data is first checked for overflow, thus

indicating saturation needed, then reducing the width of data.).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael Yaary whose telephone number is (571) 270-

1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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